

# 6

## CHAPTER 6

---

### IMPLEMENTATION

---

Bringing the South Capitol Gateway improvements to reality requires a project development process that includes an environmental study, funding decisions, urban design and engineering, permitting and approvals, and right-of-way acquisition, all leading to construction. Given the strong desire of the District government and the citizens of the city to bring this program to fruition rapidly, the program will have to be managed carefully and decisively to ensure efficient and economical delivery. Achieving positive results quickly will require that the neighbors and stakeholders continue to be actively involved in project decisions. This involvement will ensure that action is based on consensus and that projects are designed to truly meet the needs of the city and the region.

Each of the three major elements of the overall program will have its own characteristic considerations for constructability and phasing and for cost. Each may offer opportunity for alternative delivery methods, such as design-build or fast-tracked design-bid-build. The three elements are summarized below, addressing the constructability and phasing considerations and estimated costs.

#### **NEAR-TERM IMPROVEMENT PROJECTS**


The near-term improvements are intended for immediate construction to bring benefits to the corridor as soon as possible. These projects can be built without further study. DDOT will complete the design and the contract drawings for the projects and begin construction in 2005.

The near term improvements are designed to match existing DC street standards, including Washington globe light fixtures, bridge rail, and construction materials. All materials will be selected so that if they are not used in the reconstruction of South Capitol Street, they can be used elsewhere in the city. The interchangeable kit of parts ensures that no materials are wasted in construction phasing and incremental development.

#### **CONSTRUCTABILITY AND PHASING**

Projects that are related to or close to other construction must be coordinated to minimize cost and disturbance to the community and to avoid potential damage to improvements that were recently built. Most of the projects in this category are independent, so conflicts with other construction are unlikely. DDOT is moving ahead to build the near-term improvements soon, so they will be in place before other nearby projects would be built.

The projects in this category that are not independent are the ones related to WMATA's Anacostia Corridor Demonstration Project. These projects near Firth Sterling Avenue are designed to complement and enhance the demonstration project, and they are integral to its design. The near-term projects will be built before the demonstration line is constructed. WMATA will build the demonstration project through a design-build contract. The demonstration line specifications must identify the needed points of coordination and ensure that the design-build contractor designs the demonstration line to take advantage of the near-term improvements and does not damage them during the rail line's construction.



## ESTIMATED COSTS

The total approximate cost of these near-term improvements is \$4,850,000. Table 6-1 provides a summary of the order-of-magnitude improvement costs.

**Table 6-1**  
**Summary of Approximate Costs**

Improvement Location/Category	Approximate Cost
I-295 Entrance Ramp	\$200,000
Firth Sterling Avenue Corridor Phase I	220,000
Firth Sterling Avenue Corridor Phase II	3,020,000
Bicycle Improvements	50,000
South Capitol Street and N Street	130,000
South Capitol Street and M Street	390,000
South Capitol Street and I Street	50,000
Pedestrian Underpass at I-395 Ramp	690,000
E Street Intersections	100,000
Total	\$4,850,000

## CONNECTIVITY PROJECTS

The South Capitol Gateway and Corridor Improvement Study was an initial step in the creation of an appropriate gateway to the nation's capital. The study examined South Capitol Street's shortcomings and created a vision of the corridor's potential. The corridor's neighbors as well as the agencies that are responsible for public services and civic values had a voice in creating the vision. By conceiving of the study and receiving its results, the United States Congress made real the prospect of change in the corridor.

Following the completion of the South Capitol Gateway and Corridor Improvement Study, the Anacostia Access Study translated the vision into specific improvements, which are described in detail in chapter 4 and Appendix A-4. The study developed improvement options for locations in the corridor and identified the benefits and the costs of each. The conversation with affected stakeholders continued to shape the character and scale of the potential improvements.

Several other DDOT studies will define specific aspects of the South Capitol Street corridor improvements and other related projects:

- A tunnel study will explore the potential alignment and characteristics of a tunnel beneath the Anacostia River to complement the new bridge.
- The Middle Anacostia River Crossings Transportation Study is analyzing potential changes to the other adjacent river crossings on 11th Street and Pennsylvania Avenue. These changes could affect regional mobility and have other effects on transportation needs within the South Capitol Street corridor.
- The Kenilworth Avenue Corridor Study will geographically complete the studies of transportation facilities along the Anacostia River by analyzing the northern-most segment within the District of Columbia and connections into Maryland.
- The AWI Transportation Architecture Standards Study will create design standards for the Anacostia Waterfront Initiative-area transportation infrastructure.

DDOT has begun the next step in project development for the South Capitol Gateway improvements, an environmental study. The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to identify the environmental consequences of their actions that significantly affect the human environment, and to seek solutions to environmental problems. Local projects that are supported with federal funds are subject to NEPA requirements.

An environmental document of the South Capitol Street transportation improvements will determine whether they would have significant impacts. To make this determination, the environmental process includes the definition of alternative actions and the identification of the effects of these alternatives on the natural environment, the built environment, and the human environment. The environmental study will consider effects upon sustainability and the cumulative effects of the improvements and other related actions. If the environmental study identifies potentially significant impacts it may include mitigation measures that will reduce the impacts to levels that are less than significant. DDOT has worked with these agencies in The South Capitol Gateway and Corridor Improvement study and the Anacostia Access Study—with the DC Office of Planning to ensure compatibility with land use plans, with the National Park Service to enhance park access and facilities, with the National Capital Planning Commission to maintain consistency with plans for the federal city, with the Federal Highway Administration to comply with transportation program guidelines, and with many other agencies on a wide range of issues. DDOT will continue this cooperative process throughout project implementation.

Following environmental approvals, final funding decisions will be made and the necessary additional right-of-way will be acquired. Design and engineering will define each project component in greater detail and would take approximately four years, after which construction would begin. Construction could take another three to four years.

## IMPLEMENTATION

South Capitol Street's prominence could lengthen this project development schedule. The design of the South Capitol Street gateway must be of the highest quality and must be based upon a broad community consensus. Every step in project development must include thoughtful review by South Capitol Street's neighbors, others in the District and the region, and the public agencies with responsibility for the street and its surroundings. DDOT has worked with these agencies in The South Capitol Gateway and Corridor Improvement Study and the Anacostia Access Study—with the DC Office of Planning to ensure compatibility with land use plans, with the National Park Service to enhance park access and facilities, with the National Capital Planning Commission to maintain consistency with plans for the federal city, with the Federal Highway Administration to comply with federal transportation program guidelines, and with many other agencies on a wide range of issues. DDOT will continue this cooperative process throughout project implementation.

### CONSTRUCTABILITY AND PHASING

The Anacostia Access Study began the definition of construction phasing for improvements in the South Capitol Street corridor. A preliminary constructability analysis defined the elements that could be grouped together and built at about the same time, and it defined the sequence in which they could be built. This analysis is preliminary; construction phasing will be refined as the design process moves forward.

Large, complex construction projects are typically built in multiple phases. Some parts of a project may need to be completed before other parts can be started, and phasing allows the construction to follow such a sequence. Individual phases may be more easily managed than the overall project and can be built through smaller construction contracts, which can save money and produce higher-quality results. Phasing can also limit the disruption the construction causes by reducing the area that is under construction at a given time.

This preliminary analysis demonstrates that the improvements can be built in a reasonable manner. The project can be divided into manageable parts. Phases can be defined that would allow construction to proceed without undue disruption and that would allow people and goods to continue to travel through the corridor during construction.

The analysis identified four construction phases, numbered in their anticipated construction sequence. There is some flexibility to this order. Some phases need not be completely finished before the next phase can be started.

Each of these major phases may be broken down into smaller work areas called stages. These stages would be sequenced to facilitate logical construction procedures and the maintenance of traffic. The sequence of construction is subject to change based on factors such as the contractors' methods of construction, the conditions at the time of construction, coordination with other construction, maintenance of traffic, safety, and cost. These and other details will be addressed as the conceptual improvements go through design development.

Actual construction phasing could be affected by the selection of the options to be built at the different locations in the corridor. This analysis was based on the options that appear to create the greatest construction challenges.

To ensure that traffic can continue to flow through the corridor during construction, the phases should be designed to allow existing transportation links to remain in use until their replacements are built. Where that is not possible, the phases must include temporary roadway, pedestrian, and other facilities during some portion of the construction period.

### *Phase I Demolition, Environmental Remediation, and Initial Construction*

The first phase of construction includes steps to prepare for later phases. This phase also includes early construction of some project elements that would not interfere with other parts of the project.

Environmental remediation and fuel tank/building demolition and clearing will be required before a new bridge can be built over the Anacostia River. Petroleum tanks located between the river, Potomac Avenue, and Half Street, SW are in the area where the new bridge is anticipated to be built. The tanks and the adjacent buildings will need to be removed and any contaminated soils effectively cleaned up before other construction can begin. Environmental remediation may also be required along the new alignment on the east side of the Anacostia River.

A hazardous materials site assessment must be conducted, and further testing may be necessary to define the type and extent of contamination and the best methods of remediation. This work would not restrict access to the existing bridge and adjacent public streets. The actual timeframe will depend on the amount of remediation that may be required. This part of Phase I could take about two years to complete.

Another preparatory step in the first phase is moving the fueling pier that is on the east side of the river just downstream from the existing bridge. To avoid the need for fuel barges to maneuver around the new bridge piers, the fueling pier should be relocated and reconstructed downstream of the new bridge. Environmental remediation may be required around the old pier location and in an area of fill just east of the river.

Phase I includes the construction of the new intersection of Suitland Parkway and South Capitol Street, shown in Figure 6-1. Multiple stages of construction will be required to build the new roadways and demolish the old roadways. These stages will need to be carefully sequenced to maintain traffic. This construction could also be done later in Phase IV.

The new interchange at Suitland Parkway and Martin Luther King, Jr. Avenue is in Phase I because it can be built without major interference with other project elements and the linkage it provides to historic Anacostia may facilitate the construction of other improvements. The construction will require the temporary widening of Suitland Parkway to the outside. It may also require a temporary bridge next to the existing Martin Luther King, Jr. Avenue bridge over Suitland Parkway to maintain traffic during construction. The existing entrance and exit ramps to Suitland Parkway south of Martin Luther King, Jr. Avenue can be used for maintenance of traffic during construction. The existing ramps would be removed after the new interchange is completed.

The Suitland Parkway-Martin Luther King, Jr. Avenue interchange could be constructed at some other time in the construction process because it could be built independently. If a grade separation is built at Suitland Parkway and Firth Sterling Avenue, the depressed Suitland Parkway roadway would affect the ramps on the north side of Martin Luther King, Jr. Avenue, and the ends of the ramps would have to be reconstructed if the interchange had been built first.

## IMPLEMENTATION

### *Phase II New Bridge over the Anacostia River*

Upon completion of Phase I, the construction of the new bridge over the Anacostia River can begin, as shown in Figure 6-2. Bridge constructability is described in greater detail in a following section of this chapter.

### *Phase III. South Capitol Street West of the Anacostia River*

Phase III generally includes the reconstruction of South Capitol Street between I Street and the Anacostia River, shown in Figure 6-3. The selected option for the M Street intersection (either grade-separated as it is today or an at-grade intersection) will be constructed in this phase.

This phase will be faster, safer, and less expensive if traffic could be moved from South Capitol Street to another route during construction, providing the contractor with room to work while still maintaining traffic. One way this could be accomplished is to detour traffic (northbound, southbound, or both depending on the stage of construction) off South Capitol Street to an existing adjacent parallel street such as Half or First Street, SE. Temporary intersection improvements would be necessary to facilitate the operations of these detours. These improvements could include installation of temporary traffic signals and additional turn lanes. Some streets (or segments/blocks of streets) could be made one-way. The configuration of these detours may need to change during the course of construction depending on need and construction progress. This configuration may also need to change due to the proposed new Ballpark, as land and roadways originally envisioned for detours may no longer be available.

In the earliest stages of this phase, traffic would still use the existing Frederick Douglass Memorial Bridge. In the middle stages, as roadway connections to the new bridge are completed, traffic may be split between the new and existing bridges. The later stages would shift the traffic over to the new bridge and the ultimate, reconstructed South Capitol Street. Shifts in traffic will have to be coordinated with the construction progress of Phase IV. Maintaining access to residences and businesses during construction and minimizing impacts to through traffic will be required.



Figure 6-1

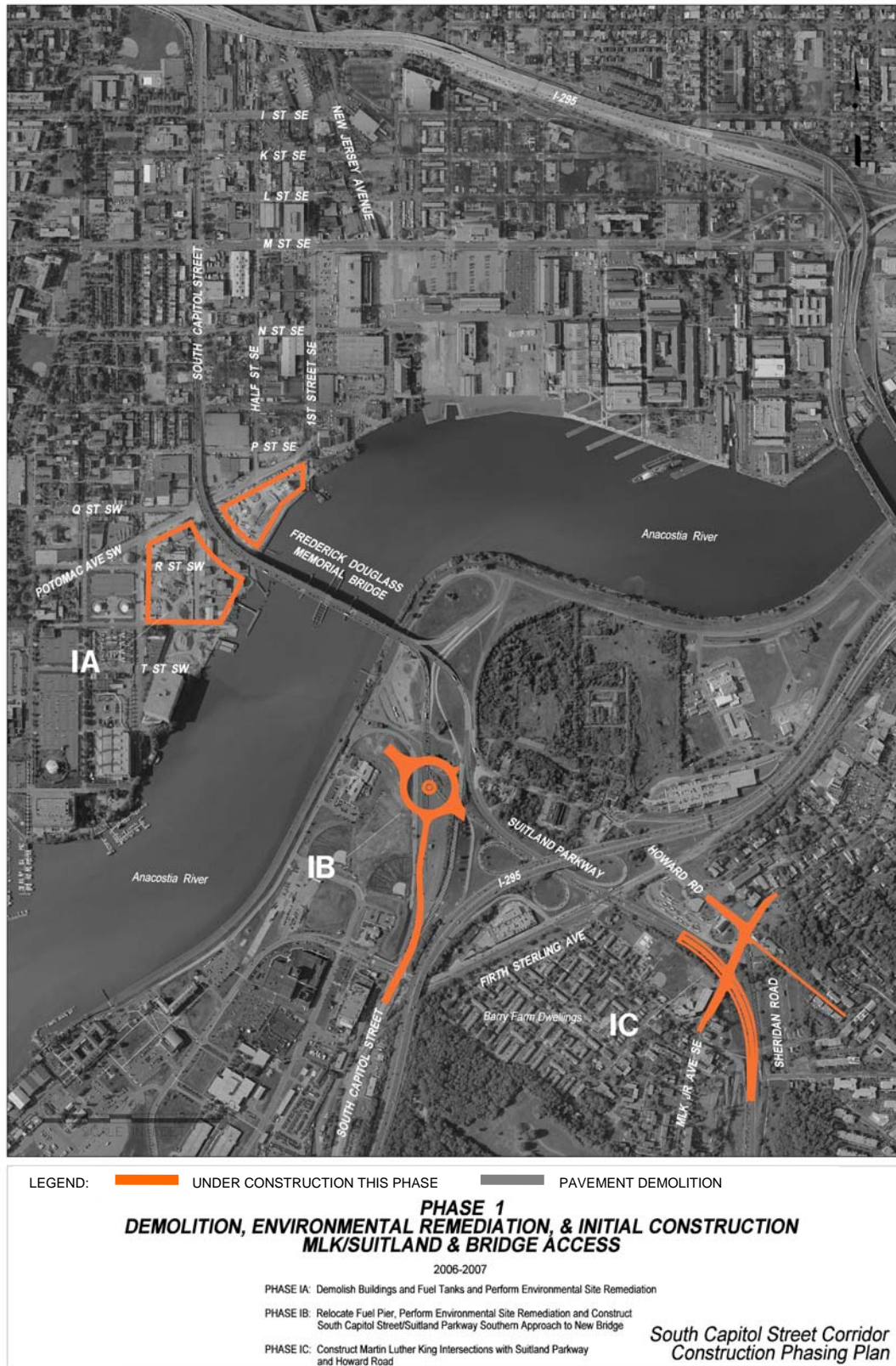


Figure 6-2

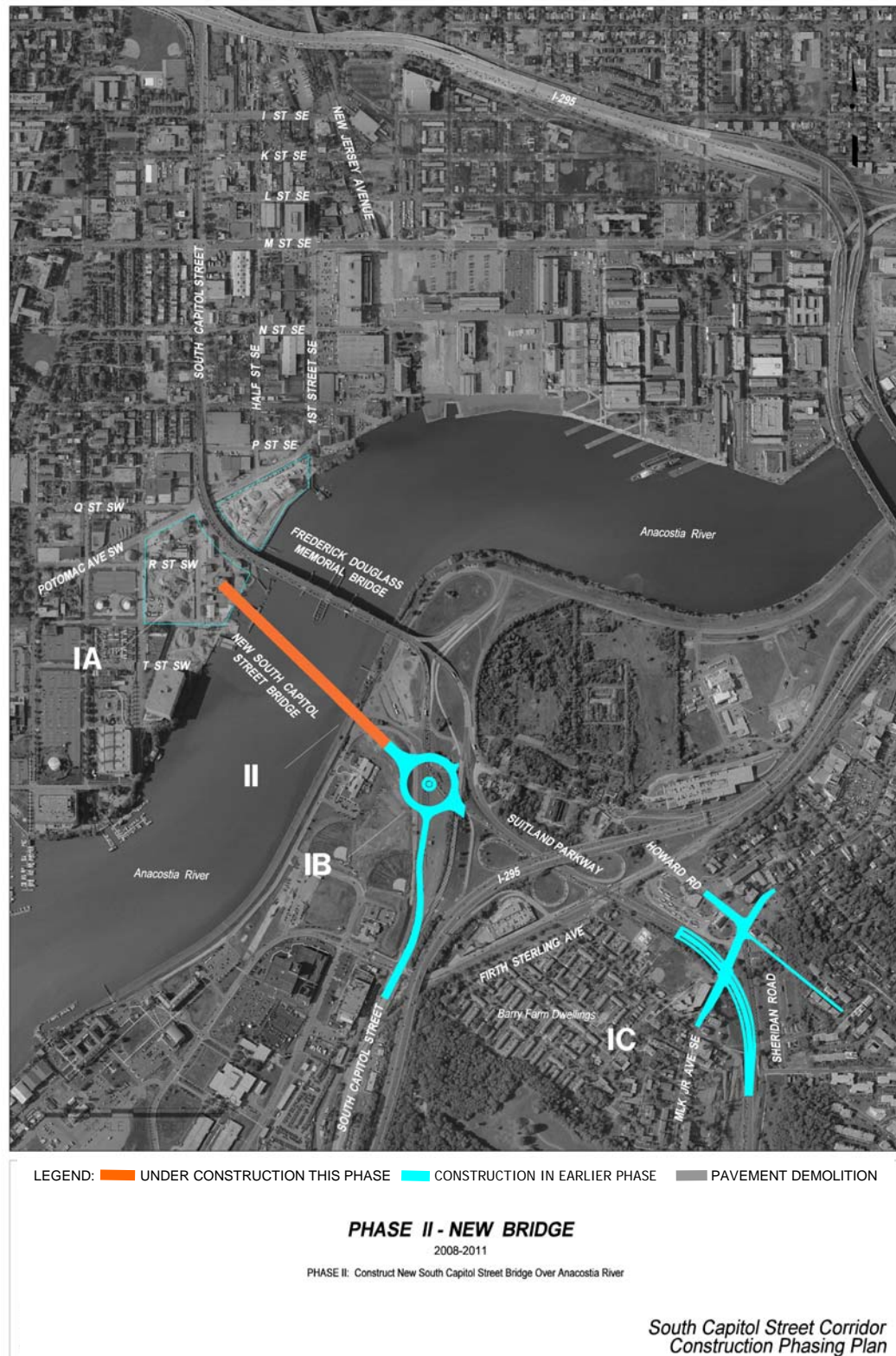
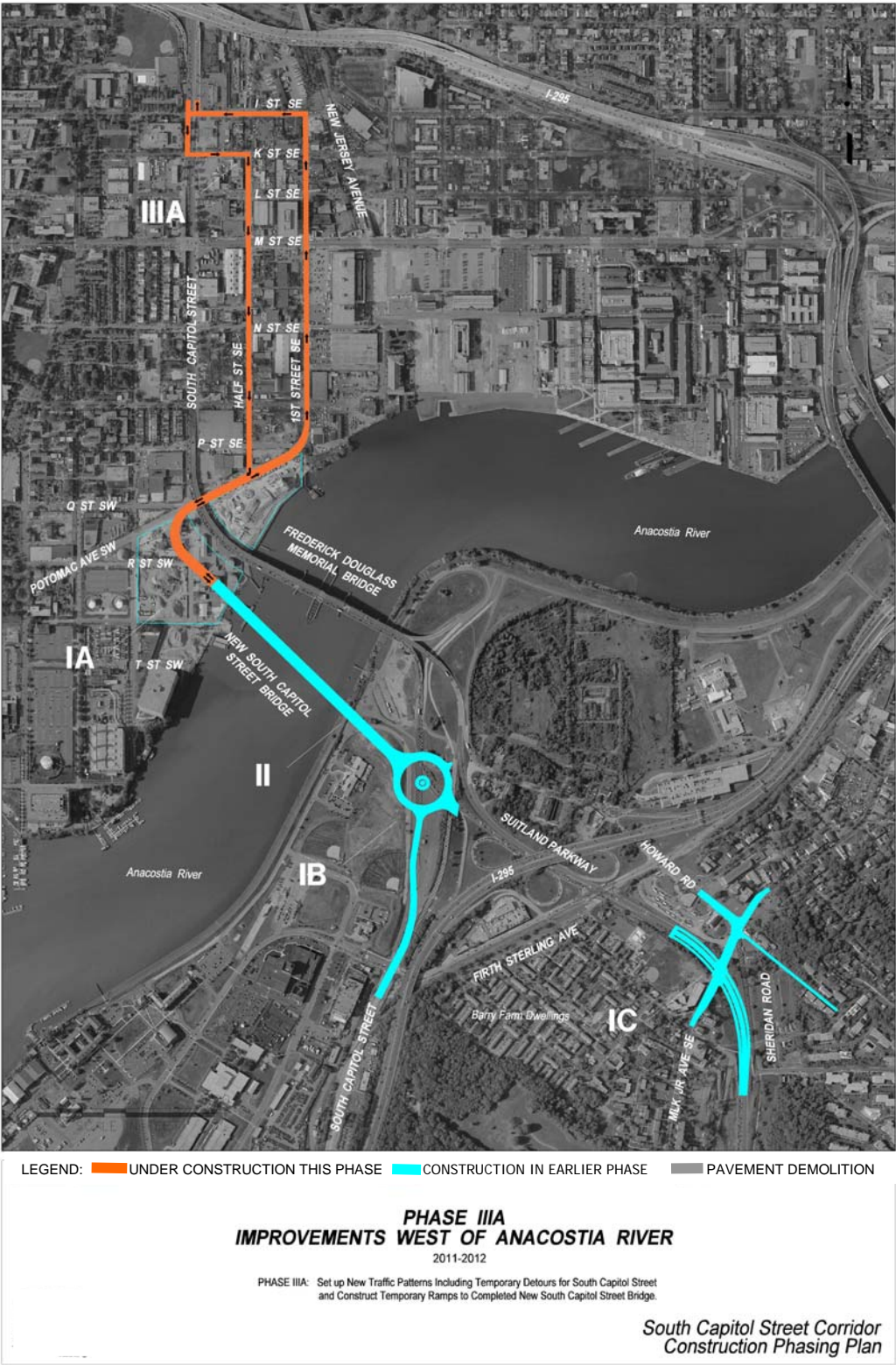




Figure 6-3



## IMPLEMENTATION

### *Phase IV. South Capitol Street and Suitland Parkway between the Anacostia River and Firth Sterling Avenue*

Phase IV, shown in Figure 6-4, includes the construction of Suitland Parkway from the new intersection with South Capitol Street at the south end of the new bridge, through the interchange with I-295, and through the intersection with Firth Sterling. This phase also includes the extension of Howard Road onto Poplar Point and the demolition of the existing bridge.

This phase will be one of the most complicated to construct. It is likely to be split into several construction contracts because of the magnitude of the work. Each contract will have to be carefully coordinated with other contracts within Phase IV as well as Phase I. The coordination between contractors will be especially important when traffic shifts between the existing bridge and the new bridge.

The construction of the interchange with I-295 will most likely require temporary ramps and bridges in order to maintain traffic. The urban diamond interchange option would be easier to stage and take less time to construct than the fly-over option. New and improved access to the WMATA parking garage from southbound I-295 could be constructed at this time. This construction could be a logical separate construction contract within Phase IV.

If a grade separation at Suitland Parkway and Firth Sterling Avenue is the selected option, maintenance of traffic will be a significant challenge. The profile changes to Suitland Parkway will extend into the I-295 interchange construction and overlap with the center ramps on the north side of the new interchange at Martin Luther King, Jr. Avenue. Suitland Parkway traffic may need to be detoured on the existing road network or onto temporary ramps around the Firth Sterling area during the initial excavation.

## ESTIMATED COSTS

Cost estimates for the connectivity improvements were developed in The South Capitol Gateway and Corridor Improvement Study and refined in the Anacostia Access Study. These estimates are preliminary and reflect the level of design detail available at this early phase of project development. The cost of the bridge could vary considerably depending upon its design. An elaborate structure that incorporated monumental elements could have a higher cost than a simpler design.

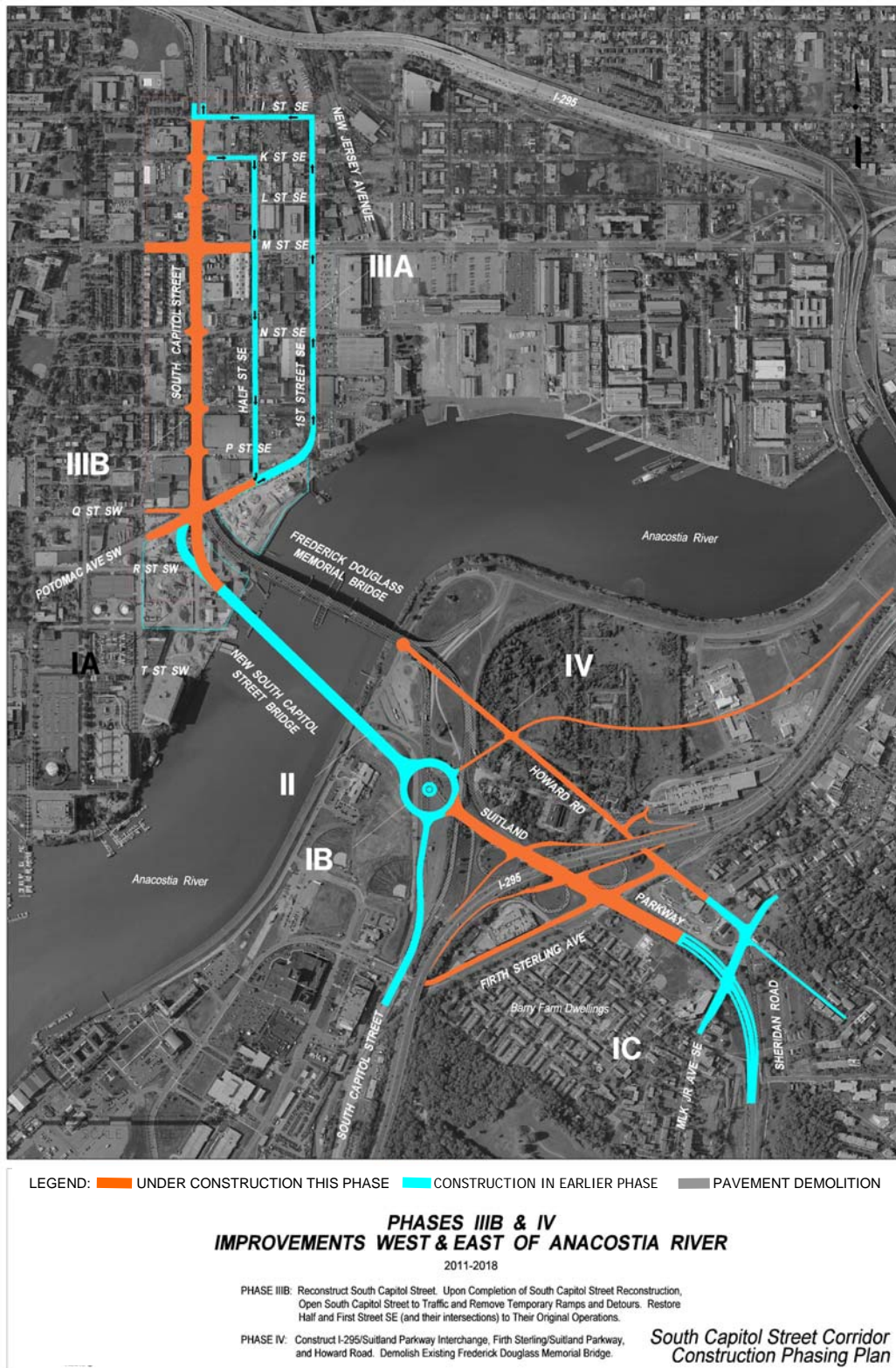
The total cost of the connectivity improvements in the South Capitol Street corridor will be the sum of the costs of the improvements at the individual locations described in Chapter 4, plus the general costs of design, mobilization, and other factors related to construction. Because there are options at some locations, the cost estimates are presented as a range that reflects a combination of the least costly options and the most costly options. The actual costs will depend upon which options are selected.

Cost estimates in the early phases of project planning are subject to many unknowns and uncertainties. Assumptions are necessary, and the estimates must rely heavily on experience in other similar projects.

The cost estimates for the South Capitol Street improvements were based upon estimates of quantities of various materials needed for construction. The quantity estimates reflect the current expectations and available documentation of project design and construction schedules. These quantities could change as planning and design progress.



Figure 6-4



## IMPLEMENTATION

The cost estimates are based on the assumption that project development would use a traditional design-bid-build contract delivery method. DDOT would hire engineering, architectural, and urban design consultants to complete the designs of the improvements and then seek bids from construction contractors to build them. The alternative method, design-build, in which a single consultant-contractor team would be retained, could affect costs.

Several cost elements are not included in these estimates.

- The cost of new transit lines through the study areas not included. The Anacostia Corridor Demonstration Project, the light rail transit line being developed on the railroad right-of-way that crosses the study area, is budgeted elsewhere and is not included in these estimates. The cost of the bridge could vary considerably depending upon its design. An elaborate structure that incorporated monumental elements could have a higher cost than a simpler design. Other potential transit lines are still under study in the District of Columbia Transit Alternatives Analysis. Because decisions have not yet been made about these other transit lines, their costs cannot yet be estimated.
- The costs of developing any new parks and memorials along South Capitol Street are not included. Decisions have to be made about the extent and design of parks and the location and type of any memorials. Their costs will depend upon the many variables that are not yet defined.
- Real estate costs for additional right-of-way are not included. These costs are highly dependent upon the extent and timing of any necessary acquisitions. The amount of new right-of-way to be acquired will be small because most of the land is already in public ownership.
- Although the cost of routine utility relocation is included, the cost of relocating major utilities is not. The transportation improvements were developed to avoid conflicts with known major utilities; however, information on utility locations and characteristics is general at this phase of project development, and unexpected utility modifications could be needed. DDOT will work with the public agencies and private companies responsible for utilities to gain additional information as project development progresses. DDOT's efforts will seek to not only avoid the need to modify utilities but also to design joint improvements that enhance utilities as well as transportation facilities.
- Several other factors could affect actual costs. One is the location and ease of access to staging areas. Major construction projects require space to store construction materials and equipment. In an urban environment, finding such sites can be difficult. Land may need to be temporarily acquired or leased at some cost. If the available sites are inconvenient, the additional time and effort required could also add to costs.
- Restrictions on working hours and methods could also add to costs. If work is restricted to certain hours to avoid conflicts with traffic or to lessen vibration and noise impacts, the construction process could be less efficient and could take longer. The proximity to neighborhoods and businesses affect these concerns and requirements. Similarly, any special construction procedures to reduce vibration and noise impacts could affect costs.

Because some project characteristics are not yet known, certain contingencies, factors, and escalations were applied to the cost estimates. They apply standard cost-estimation techniques and are listed in Appendix A-6.

Table 6-2 lists the cost estimates by construction phase for Phases I, III, and IV. The cost estimate for Phase II, the new bridge, is described in a following section. These are year of existing dollars.

**Table 6-2**  
**Preliminary Estimated Connectivity Project Costs by Phase**

<b>Construction Phase</b>	<b>Preliminary Estimated Cost Range, Million (\$)</b>
Construction Phase I	111.5–117.8
Construction Phase III	44.9–59.2
Construction Phase IV	104.6–174.7

## **REPLACEMENT ANACOSTIA RIVER BRIDGE PROJECT**

The new bridge across the Anacostia River will be the visual and functional centerpiece of the corridor. It will be key to South Capitol Street's transformation. The bridge will provide a symbolic welcome to visitors as they approach the United States Capitol while gracefully meeting the river's banks, becoming part of the parks and neighborhoods on both sides. Not just for cars and trucks, the bridge will serve a full complement of transit services, cyclists, and pedestrians, contributing to a more sustainable transportation system. Navigation on the river will be maintained, both during construction and after. The bridge will use state-of-art construction techniques and materials that are appropriate to its style, ensuring that it will be an enduring presence and that it can be maintained at reasonable cost. Realizing all these objectives will require special attention throughout the bridge's implementation process.

DDOT has begun a bridge alignment study to define in greater detail the bridge's horizontal and vertical alignment. The study results will set the bridge's position, creating the basis for subsequent decisions about bridge concept and form that will affect both function and aesthetics. The study is examining geotechnical conditions and utilities that will affect foundation types and locations, soil contamination that may require mitigation, the dimensions and location of the movable spans, the effect on river traffic, and the right-of-way that must be acquired.

Along with the rest of the transportation improvements in the corridor, the bridge is subject to the requirements of the National Environmental Policy Act, and the South Capitol Street environmental study includes the bridge. The environmental study will consider the bridge's impacts along with those of the other transportation improvements, and the environmental study's results will be based upon findings for the entire corridor.

A Coast Guard permit must be obtained for the bridge. The permitting process is intended to ensure that the new bridge will not impede navigation. The Coast Guard has established a formal regulatory process that includes opportunities for public comment on the effect of the bridge on navigation.

Subsequent design and engineering steps will be similar to those for the other connectivity improvement projects, but the design is likely to attract greater public scrutiny because of the bridge's visual prominence. Reaching consensus on the appropriate design will require special efforts in public participation and agency coordination.



## CONSTRUCTABILITY AND PHASING

The bridge is Phase II in the construction sequence. A new Anacostia River Bridge will be outside of the existing roadways, so its construction should have minimal impact on traffic other than rubberneckers and construction vehicles to and from the site.

Environmental and seasonal restrictions may affect the scheduling of the construction of the bridge piers in the river. Potential noise restrictions could also impact the methods and scheduling of the bridge construction. If additional dredging to facilitate bridge construction is necessary, advanced environmental approvals would be needed. Bridge construction will have to be coordinated with the Coast Guard in order to maintain the navigation channel. The movable span of the existing bridge must retain the ability to open during construction of the new bridge.

Phase II may take about three years. The type of bridge that is selected could determine the magnitude of the impacts to the river and the duration of the construction.

## ESTIMATED COSTS

Preliminary cost estimates for the bridge were developed in The South Capitol Gateway and Corridor Improvement Study and reviewed in the Anacostia Access Study. The same methods were used as in the cost estimates for the other connectivity improvement projects, and the same assumptions, contingencies, factors, and escalations were applied. The preliminary estimate of bridge costs is \$214.2 million.

## COST SUMMARY

The total preliminary cost estimate for the connectivity improvements and the new bridge is \$475.2 million to \$565.9 million, as shown in Table 6-3.

**Table 6-3**  
**Preliminary Estimated Corridor Costs by Phase**

Construction Phase	Preliminary Estimated Cost Range, Million (\$)
Construction Phase I	111.5–117.8
Construction Phase II	214.2
Construction Phase III	44.9–59.2
Construction Phase IV	104.6–174.7
<b>TOTAL</b>	<b>475.2–565.9</b>

## COST SUMMARY CONCLUSIONS

In addition to developing the conceptual cost estimates for the improvements investigated in this study, DDOT also considered the costs for improvements that will be undertaken in the vicinity. By analyzing and aligning the construction timing and costs for all of the related projects, DDOT could then project the costs of these projects out over the next few years in order to clearly lay-out project management and funding needs for the next few major cycles of federal funding. DDOT wanted to be certain that as these critical path projects in the South Capitol Street gateway were being constructed, funds would be available to move them forward in a timely and efficient manner.

Table 6-4 is a snapshot of the estimated costs for the all the associated projects in the corridor. These costs reflect the funds that DDOT will seek to obligate through available funding channels.

**Table 6-4**  
**Snapshot of Estimated Costs**

Component	Preliminary Estimated Cost
<i>Near-Term Improvements</i>	<b>\$4,850,000</b>
I-295 Entrance Ramp	\$200,000
Firth Sterling Avenue Corridor Phase I	\$220,000
Firth Sterling Avenue Corridor Phase II	\$3,020,000
Bicycle Improvements	\$50,000
South Capitol Street and N Street	\$130,000
South Capitol Street and M Street	\$390,000
South Capitol Street and I Street	\$50,000
Pedestrian Underpass at I-395 Ramp	\$690,000
E Street Intersections	\$100,000
<i>Connectivity Improvements</i>	<b>\$539,667,234</b>
Long-Term Property Acquisition & Environmental Remediation	\$28,950,000
Long-Term Maintenance of Traffic	\$5,126,128
Suitland Parkway/MLK Interchange	\$28,940,000
Demolition, Environmental Remediation, and Detours	\$42,000,000
South Capitol Street Improvements West of the River	\$59,176,106
South Capitol Street Improvements East of the River	\$175,475,000
<i>Bridge Rehabilitation</i>	<b>\$27,000,000</b>
<i>New Bridge</i>	<b>\$214,000,000</b>
<i>Tunnel</i>	<b>\$915,000,000</b>
<i>Environmental Assessment</i>	<b>\$1,980,000</b>
<b>TOTAL</b>	<b>\$1,488,997,235</b>

### MOVING AHEAD

DDOT has undertaken extensive study into the ways and means to create a South Capitol Street gateway. This is a large, complex undertaking that will take years to complete. As a result, the project development process should advance immediately.

Action is needed now to solve serious, existing problems. Barriers to neighborhood access, safety concerns, and poor aesthetics severely and negatively affect both the people who live and work around South Capitol Street and those who travel along it. Any delay in improving South Capitol Street prolongs these negative impacts.

Immediate action is also necessary to support the successful implementation of the Anacostia Waterfront Initiative plans. These plans are a complex, interrelated set of actions to accomplish revitalization of the Anacostia waterfront and surrounding city neighborhoods. Transportation improvements, specifically reconstructing transportation infrastructure to improve access to waterfront lands and better serve area neighborhoods, are one of the five goals of the AWI. Furthermore, the sustainable economic development and creation of an interconnected waterfront park with extensive public access envisioned in the AWI plans rely on improved transportation facilities.

One of the most compelling reasons for immediate action is the need to replace the Frederick Douglass Memorial Bridge. Building a new bridge is a lengthy process. Because the bridge is an important part of the regional transportation network, planning should move forward now to ensure that the new bridge is in place when needed.

Finally, South Capitol Street is a critical component in homeland security and national defense. It is one of the city's evacuation routes and connects multiple military installations in the vicinity. Its continued effective performance is in the national interest.